3. In view of the Eleventh Amendment, a claim for money damages, made by a State on behalf of her individual citizens, against another State, is beyond the original jurisdiction of this Court. P. 374.
4. The evidence in this case shows that floods in the Bois de Sioux River, resulting in inundations of riparian farm lands in North Dakota, were caused by excessive rainfalls during a series of years, rather than by drainage operations conducted by Minnesota, and fails to sustain the peculiar burden resting on North Dakota to prove her allegations to the contrary. Pp. 376, 386.

Bill dismissed without prejudice.

THIS was a suit brought originally in this Court by the State of North Dakota to enjoin the State of Minnesota from continuing to use a system of drainage ditches constructed by the latter State, and for money compensation for damage to North Dakota farmers caused by overflows of the Bois de Sioux River, attributed by the plaintiff to the construction and operation of the ditches. The plaintiff also sought damages for destruction of public roads, bridges, etc., caused by the overflows. See also 256 U. S. 220. In the following summaries of argument no attempt is made to incorporate discussion of the facts.

Mr. H. M. Boutelle, with whom *Mr. William Langer*, Attorney General of the State of North Dakota, *Mr. John Lind* and *Mr. I. C. Pinkney* were on the briefs, for complainant.[1]

The right to maintain this suit is established by *Georgia* v. *Tennessee Copper Co.*, 206 U. S. 230; *Kansas* v. *Colorado*, 185 U. S. 125; *Missouri* v. *Illinois*, 180 U. S. 208; *In re Debs*, 158 U. S. 564.

The citizen is remediless, unless redress of his wrongs may be invoked by his State.

The rules established by the common law are applicable in controversies between States. *Kansas* v. *Colorado*,

[1] *Mr. Sveinbjorn Johnson*, Attorney General of the State of North Dakota, was also on the briefs filed upon the second argument.

supra; s. c. 206 U. S. 46; *Western Union Tel. Co.* v. *Call Pub. Co.,* 181 U. S. 92.

The doctrine of state equality is inconsistent with the contention of Minnesota in this case, which presupposes that that State may adopt such measures as it sees fit for the improvement of its domain and the welfare of its citizens, regardless of the consequences to neighboring commonwealths or their citizens. *Kansas* v. *Colorado, supra; Sylvester* v. *Washington,* 215 U. S. 80; *Rickey Land Co.* v. *Miller & Lux,* 218 U. S. 258; *Bean* v. *Morris,* 221 U. S. 485; *Marshall Dental Mfg. Co.* v. *Iowa,* 226 U. S. 460.

Minnesota has no legal right to appropriate or use international watercourses in any manner unreasonably taxing their capacity, to the injury of others whose rights therein are coequal with her own. *Kansas* v. *Colorado, supra; Atchison* v. *Peterson,* 20 Wall. 507; *Howard* v. *Ingersoll,* 13 How. 381; *Head* v. *Amoskeag Mfg. Co.,* 113 U. S. 9; *United States* v. *Rio Grande Co.,* 174 U. S. 690.

The case of the complainant may be broadly rested on those rights which are the natural incidents of its proprietary status, as owner of lands bordering a natural watercourse, and, equally on the right to preserve the natural conditions of the stream.

On the extent to which a natural watercourse may be employed by an upper proprietor for his own purposes, see: II Farnum, Waters & Water Rights, § 186; *Jackman* v. *Arlington Mills,* 137 Mass. 277; *Noonan* v. *Albany,* 79 N. Y. 470; *McCormick* v. *Horan,* 81 N. Y. 86; *Walshe* v. *Dwight Mfg. Co.,* 178 Ala. 310; *O'Brien* v. *St. Paul,* 18 Minn. 182; *Baldwin* v. *Ohio Township,* 70 Kans. 102; *Gibbs* v. *Williams,* 25 Kans. 214; *Walker* v. *New Mexico Ry.,* 165 U. S. 593; *Grant* v. *Kuglar,* 81 Ala. 637; *Tillotson* v. *Smith,* 32 N. H. 90; *Mayor* v. *Appold,* 42 Md. 442; *Hyatt* v. *Albro,* 121 Mich. 638; *Oregon Iron Co.* v. *Trullenger,* 3 Ore. 1; *McKee* v. *Delaware Canal Co.,* 125 N. Y. 353.

While the decisions of Minnesota are in no wise controlling in the present controversy, it may be observed that the courts of that State have been on both sides of the proposition involved, starting with full recognition of the common law principles, and ending by repudiating the common law for a peculiar doctrine. See *O'Brien* v. *St. Paul*, 18 Minn. 182; *Hogenson* v. *St. Paul, etc. Ry.*, 31 Minn. 224; *Olson* v. *St. Paul, etc. Ry.*, 38 Minn. 419; *Jordan* v. *St. Paul, etc. Ry.*, 42 Minn. 172; *Rowe* v. *St. Paul, etc. Ry.*, 41 Minn. 384; *Sheehan* v. *Flynn*, 59 Minn. 436; *Gilfillan* v. *Schmidt*, 64 Minn. 29; *Wickstrom* v. *Board of County Commrs.*, 98 Minn. 89; *Erhardt* v. *Wagner*, 104 Minn. 258; *Hartle* v. *Neighbauer*, 142 Minn. 438.

Complainant is entitled to an injunction restraining the further continuance of the trespass. *Cruikshank* v. *Bidwell*, 176 U. S. 73; *Smyth* v. *Ames*, 169 U. S. 466; *Franklin Tel. Co.* v. *Harrison*, 145 U. S. 459; *Watson* v. *Sutherland*, 5 Wall. 74; *Kilbourn* v. *Sunderland*, 130 U. S. 505; *Walla Walla* v. *Walla Walla Water Co.*, 172 U. S. 1.

The jurisdiction in equity, having attached, will be retained to administer all relief which the nature of the case demands as necessary to a final determination of all matters in issue. *United States* v. *Union Pac. Ry. Co.*, 160 U. S. 1; I Pomeroy, Eq. Jur., 3d ed., § 181; *Lynch* v. *Metropolitan, etc. Ry. Co.*, 129 N. Y. 274.

Complainant is entitled to the restoration of the natural conditions.

That complainant is entitled to a decree for damages has been sufficiently indicated in the authorities already cited; though the principle on which these damages are to be ascertained, in a case of this character, is not free from difficulty.

While the measure of damages adopted in private cases may appear both unreasonable and inadequate for determining the redress to which a State is entitled for trespass

on its domain, there is no other known rule to which recourse may be had. It is necessarily assumed that the general theory of compensatory damage will be applied. But the complainant does not concede either the propriety or reasonableness of this rule. Its technical limitations would not be regarded as controlling diplomatic negotiations.

The local rules prevailing in the States involved, are not controlling.

In addition to the damages to farm-owners, there is the matter of the public damage in the destruction of roads, bridges, culverts and miscellaneous improvements in the flooded area aggregating $7,230. Also a negligible item of loss of taxes by abatement, which needs not be considered.

Mr. John E. Palmer and *Mr. Egbert S. Oakley,* Assistant Attorney General, with whom *Mr. Clifford L. Hilton,* Attorney General, of the State of Minnesota, and *Mr. Montreville J. Brown,* Assistant Attorney General, were on the briefs, for defendant.[1]

The Eleventh Amendment withdrew from the judicial power of the United States every suit at law or in equity commenced or prosecuted against one of the United States by a citizen of another State, and prohibits this Court from exercising jurisdiction of a cause in which one State seeks relief against another State on behalf of its citizens in a matter in which the State prosecuting has no interest of its own. *New Hampshire* v. *Louisiana,* and *New York* v. *Louisiana,* 108 U. S. 76; *Louisiana* v. *Texas,* 176 U. S. 1.

The rule laid down in these cases is applicable to the case before us, in so far as the recovery of damages is concerned. In that aspect, it is a suit by these landowners, and the State is simply lending the use of its

[1] Upon the second hearing, the case was argued by *Mr. Brown* on behalf of the defendant.

name. This rule was in no way modified by *Georgia* v. *Tennessee Copper Co.*, 206 U. S. 230; *Missouri* v. *Illinois*, 180 U. S. 208; and *Kansas* v. *Colorado*, 185 U. S. 125.

North Dakota is not entitled to equitable relief.

If the common law rule is applicable, we contend that Minnesota has a right to rid its lands of surface water even though in so doing injury may result to the lands of a neighboring State. The gist of the rule is that no legal right of any kind can be claimed *jure naturae* in the flow of surface water, so that neither its detention, diversion nor repulsion is an actionable injury, even though damage ensue. *Walker* v. *New Mexico, etc., Ry. Co.*, 165 U. S. 593; *Bowlsby* v. *Speer*, 31 N. J. L. 351; *Baltzeger* v. *Carolina Midland R. R. Co.*, 54 S. Car. 242; *Hoyt* v. *Hudson*, 27 Wis. 656. Minnesota relieves its lands of the common enemy—surface water—and, if it is cast upon the lands of complainant, it is for complainant to get rid of it as best it can.

Under the decisions of North Dakota, surface water may be cast into a natural water course or drain-way, even though by so doing the flow is so accelerated as to cause the flooding of lands lower down; and the owner of such lands has no right of action. *Soules* v. *Northern Pacific Ry. Co.*, 34 N. D. 7; *McHenry County* v. *Brady*, 37 N. D. 59.

North Dakota in adopting this rule seems to have followed the courts of other jurisdictions. *Williams* v. *Gale*, (Md.) 3 H. & J. 231; *Miller* v. *Laubach*, 47 Pa. St. 154; *Foot* v. *Bronson*, 4 Lans. 47; *Fenton & Thompson R. R. Co.* v. *Adams*, 221 Ill. 201.

Complainant is in no position to object to the application of the rule which its court has adopted for the determination of disputes between its citizens and between its citizens and municipalities and the citizens and municipalities of a foreign State. In *Kansas* v. *Colorado*, *supra*, this Court applied the rule of law which had been adopted

by the supreme court of the complaining State. We submit that the same course might properly be followed in the case at bar.

The common law as to surface water is in force in Minnesota, except that it is modified to the extent that one must so use his own as not unnecessarily or unreasonably to injure his neighbor. Under this rule it is the duty of an owner draining his land to deposit surface water in some natural drain if one is reasonably accessible, and he may do so even though it is thereby conveyed upon the land of his neighbor, if he does not unreasonably injure him. A circumstance which the Minnesota court considers in determining what is a reasonable use of one's own land under this rule is the amount of benefit to his land, as compared with the amount of injury to his neighbor's land, by reason of casting the burden of the surface water upon it. *Sheehan* v. *Flynn*, 59 Minn. 436; *Gilfillan* v. *Schmidt*, 64 Minn. 29; *Hartle* v. *Neighbauer*, 142 Minn. 438.

It cannot be successfully contended that Minnesota has violated its own rule in draining surface water by means of its system of ditches, although the lands of North Dakota are subjected to injury as claimed.

Mr. Chief Justice Taft delivered the opinion of the Court.

This is a bill in equity exhibited by the State of North Dakota against the State of Minnesota. The bill avers that the latter State has, by constructing cut-off ditches and straightening the Mustinka River, increased the speed and volume of its flow into Lake Traverse, and thereby raised the level of the Lake, causing its outlet, the Bois de Sioux River, to overflow and greatly to injure a valuable farming area in North Dakota lying on the west bank of that stream. The damage to the complainant in destruction of roads and bridges is alleged to be $5,000, and the

damage to owners of the farms in destruction of crops and injury to the arable quality of their land, to be more than a million dollars. A further allegation is that the ditch is likely at every period of high water to cause overflows as injurious as those complained of. The prayer is for an order enjoining the continued use of the ditches and a decree against the State of Minnesota for the damages sustained by the complainant State and its farmers. Minnesota in her answer admits the construction of the ditches for drainage and sanitation, but denies that they caused the overflow complained of, and avers that the flooding was due to unusual rainfall in the successive years of 1914, 1915 and 1916.

One owning land on a watercourse may by ditches and drains turn into it all the surface water that would naturally drain there, but he may not thus discharge into the watercourse more water than it has capacity to carry, and thus burden his lower neighbor with more than is reasonable. In such cases, the injured party is entitled to an injunction. *Jackman* v. *Arlington Mills,* 137 Mass. 277; *McKee* v. *Delaware Canal Co.,* 125 N. Y. 353; *Noonan* v. *Albany,* 79 N. Y. 470; *McCormick* v. *Horan,* 81 N. Y. 86; *Merritt* v. *Parker,* 1 N. J. L. 460; *Tillotson* v. *Smith,* 32 N. H. 90; *Mayor* v. *Appold,* 42 Md. 442; *Baldwin* v. *Ohio Township,* 70 Kans. 102; II Farnum on Waters, § 488, p. 1633; Gould on Waters, § 274.

If one State by a drainage system turns into an interstate river water in excess of its capacity, and floods its banks in another State and thus permanently and seriously injures valuable farm lands there, may the latter State have an injunction in this Court?

The jurisdiction and procedure of this Court in controversies between States of the Union differ from those which it pursues in suits between private parties. This grows out of the history of the creation of the power, in that it was conferred by the Constitution as a substitute

for the diplomatic settlement of controversies between sovereigns and a possible resort to force. The jurisdiction is therefore limited generally to disputes which, between States entirely independent, might be properly the subject of diplomatic adjustment. They must be suits "by a State for an injury to it in its capacity of quasi-sovereign. In that capacity the State has an interest independent of and behind the titles of its citizens, in all the earth and air within its domain." "When the States by their union made the forcible abatement of outside nuisances impossible to each, they did not thereby agree to submit to whatever might be done. They did not renounce the possibility of making reasonable demands on the ground of their still remaining quasi-sovereign interests; and the alternative to force is a suit in this court." *Georgia* v. *Tennessee Copper Co.*, 206 U. S. 230, 237. In accord with this principle, this Court has entertained a suit by one State to enjoin the deposit by another State, in an interstate stream, of drainage containing noxious typhoid germs because dangerous to the health of the inhabitants of the former. *Missouri* v. *Illinois*, 180 U. S. 208, 241; s. c. 200 U. S. 496, 518. It has assumed jurisdiction to hear and determine a bill to restrain one State from a diversion of water from an interstate stream by which the lands of a State lower down on the stream may be deprived of the use of its water for irrigation in alleged violation of the right of the lower State. *Kansas* v. *Colorado*, 185 U. S. 125, 141, 143; s. c. 206 U. S. 46, 95. In *Wyoming* v. *Colorado*, 259 U. S. 419, 464, it granted relief to one State to prevent another from diverting water from an interstate stream to the injury of rights acquired through prior appropriations of the water by land owners of the former State under the doctrine of appropriation recognized and administered in both States. In *Georgia* v. *Tennessee Copper Co.*, *supra*, it enjoined in behalf of a State the generation and spread of noxious fumes by a

STATE OF NORTH DAKOTA *v.* STATE OF MINNESOTA.

IN EQUITY.

No. 10, Original. Argued January 3, 4, 1921; restored to docket and ordered that supplemental proofs be taken, April 18, 1921; Argued March 12, 13, 1923.—Decided December 10, 1923.

1. Where a State, by changing the method of draining surface water from lands within her border, increases the flow of an interstate stream greatly beyond its natural capacity, so that the water is thrown upon farms in another State, the latter State has such an interest, as quasi-sovereign, in the comfort, health and prosperity of her farm-owners that resort may be had by her to the original jurisdiction of this Court, for relief by injunction, against the State causing the injury. P. 372.
2. In a suit of that character, the burden upon the plaintiff State of sustaining her allegations is much greater than that imposed upon the plaintiff in an ordinary suit between private parties. P. 374.

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[1] *Loring* v. *Palmer*, 118 U. S. 321, 341; *Lee* v. *Wysong*, 128 Fed. 833, 838; *Keuper* v. *Mette*, 239 Ill. 586, 592; *Campau* v. *Campau*, 44 Mich. 31, 34; *Hill* v. *Reiner*, 167 Mich. 400, 402.

factory in another State because it was a public nuisance in destroying crops and forests within the borders of the former State. In *Pennsylvania* v. *West Virginia*, 262 U. S. 553, 592, at the suit of one State, this Court has enjoined another State from enforcing its statute by which the flow of natural gas in interstate commerce from the latter State was forbidden, to the threatened loss and suffering of the people of the suing State who had become dependent for comfort and health upon its use. It needs no argument, in the light of these authorities, to reach the conclusion that, where one State, by a change in its method of draining water from lands within its border, increases the flow into an interstate stream, so that its natural capacity is greatly exceeded and the water is thrown upon the farms of another State, the latter State has such an interest as quasi-sovereign in the comfort, health and prosperity of its farm owners that resort may be had to this Court for relief. It is the creation of a public nuisance of simple type for which a State may properly ask an injunction.

In such action by one State against another, the burden on the complainant State of sustaining the allegations of its complaint is much greater than that imposed upon a complainant in an ordinary suit between private parties. "Before this court can be moved to exercise its extraordinary power under the Constitution to control the conduct of one State at the suit of another, the threatened invasion of rights must be of serious magnitude and it must be established by clear and convincing evidence." *New York* v. *New Jersey*, 256 U. S. 296, 309; *Missouri* v. *Illinois*, 200 U. S. 496, 521.

North Dakota, in addition to an injunction, seeks a decree against Minnesota for damages of $5,000 for itself and of a million dollars for its inhabitants whose farms were injured and whose crops were lost. It is difficult to see how we can grant a decree in favor of North Dakota

for the benefit of individuals against the State of Minnesota in view of the Eleventh Amendment to the Constitution, which forbids the extension of the judicial power of the United States to any suit in law or equity prosecuted against any one of the United States by citizens of another State or by citizens and subjects of a foreign State. The evidence discloses that nearly all the Dakota farm owners whose crops, lands and property were injured in these floods, contributed to a fund which has been used to aid the preparation and prosecution of this cause. It further appears that each contributor expects to share in the benefit of the decree for damages here sought, in proportion to the amount of his loss. Indeed it is inconceivable that North Dakota is prosecuting this damage feature of its suit without intending to pay over what it thus recovers to those entitled. The question of the power of this Court in such a case was very fully considered in *New Hampshire* v. *Louisiana*, 108 U. S. 76. There citizens of one State held bonds of another State, payment of which was in default. The holders assigned the bonds to their State, which, as assignee, brought an action in this Court to recover a decree for the amount due, against the obligor in the bonds. The law of the suing State authorizing the suit provided that on recovery the money should be turned over to the assignors, less the expenses of the litigation. Recovery was held to be forbidden by the Eleventh Amendment and the bill was dismissed. It was argued that as a sovereign the State might press the claims of its citizens against another State, but it was answered by this Court that such right of sovereignty was parted with by virtue of the original Constitution in which, as a substitute therefor, citizens of one State were permitted to sue another State in their own names, and that when the Eleventh Amendment took away this individual right, it did not restore the privilege of state sovereignty to press such claims. The right of a State as *parens patriae* to

bring suit to protect the general comfort, health, or property rights of its inhabitants threatened by the proposed or continued action of another State, by prayer for injunction, is to be differentiated from its lost power as a sovereign to present and enforce individual claims of its citizens as their trustee against a sister State. For this reason the prayer for a money decree for the damage done by the floods of 1915 and 1916 to the farms of individuals in the Bois de Sioux Valley, is denied, for lack of jurisdiction.

Having thus pointed out the rules of law which must control our conclusion, we come to consider the much disputed issues of fact upon which our decision as to the injunction prayed turns.

The boundary line between South Dakota and North Dakota on the west, and Minnesota on the east, runs through the middle of Lake Traverse and thence north by the channel of the Bois de Sioux River until that river joins the Otter Tail River to make the Red River of the North. Lake Traverse lies in a basin between Minnesota and South Dakota. The east and west line between the two Dakotas is some five miles north of the point of discharge of the Lake into the Bois de Sioux. The basin is the bed of an ancient lake formed by glacial action. The present lake reaches from southwest to northeast, has an average width of more than two miles and is with its extended ponds and swamps about twenty miles long. To the south it has high rocky banks and is a real lake. As it extends toward the north, it is divided into smaller lakes or ponds or sloughs by deltas from entering streams. The Mustinka River reaches the Lake at its northern end just beyond the region of its high banks and makes a delta walling off Mud Lake. The Bois de Sioux flows north and is a sluggish stream, with low marshy banks for fifteen miles to a point opposite where the Rabbit River enters from the Minnesota side. Beyond that, its

banks grow higher. It flows down the eastern side of its basin so that the Minnesota low lands on its bank are of small area.

The watershed for Lake Traverse and the Bois de Sioux as far as the mouth of the Rabbit River, but not including the watershed of that river, is 1442 square miles, of which 924 miles are in Minnesota and 518 miles are in the Dakotas. Of the 924 miles of Minnesota watershed, 131 miles drain directly into the lake, and 793 miles drain through the Mustinka. Of these, the drainage from 105 miles enters below the ditches and tributaries which play any part in our problem. It will thus be seen that the drainage into the Lake and the Bois de Sioux from the Mustinka River and the ditches, here under consideration, is from a watershed of 688 miles, or something less than fifty per cent. of the whole watershed by the run-off from which the basin of the Bois de Sioux in 1915 and 1916 was overflowed. The Mustinka watershed extends northeast from Lake Traverse across a level prairie country, embracing much of Traverse County and part of Grant County, Minnesota, until it reaches on the east, north and south a much higher level of hills and hollows with lakes and standing pools called in this case the Moraine Zone. The trend of the Mustinka River bed upwards from the Lake is at first to the northeast some twenty odd miles to a point where Twelve Mile Creek enters the river from the south, thence easterly several miles to where Five Mile Creek enters the river also from the south. Above this point, the river is known as the Upper Mustinka. Of these three constituents, Twelve Mile Creek is the dominant stream, draining 364 miles, or 54 per cent. of the whole Mustinka watershed. Five Mile Creek drains 121 square miles, or 16⅔ per cent., while the Upper Mustinka drains 203 square miles, or 29 per cent. The Upper Mustinka is a winding, crooked stream with banks not always well defined, and with a fall in its

channel of 2.25 feet to the mile. Five Mile Creek is less crooked but with low banks easily overflowed and a slope of five feet in the mile. Twelve Mile Creek has a slope in its channel of 2⅔ feet for 9 miles and 1¼ feet in the next three. It has higher banks than the others and a more marked channel and rarely overflows.

The original Mustinka Ditch was intended to drain farm lands in Grant County east of Traverse County, and was built before 1900 from a point in the Upper Mustinka near the town of Norcross in a westerly direction along the valley of that stream some seven miles, cutting off its curves and crossing the Five Mile Creek south of its confluence with the Mustinka and emptying at right angles into Twelve Mile Creek. There was a great flood due to a succession of wet years in 1906 and 1907. The farmers in the lower watersheds of the Five Mile and Twelve Mile creeks concluded that the State Ditch, as it was called, was the cause of the flooding and in a petition they asked the Legislature by further work to relieve them from danger of future overflows. The Legislature was thus induced to pass an Act in 1911 containing a preamble, on the recital of which North Dakota strongly relies to support its case as admissions of Minnesota. The preamble recited that the ditch constructed before 1900 to drain lands in Grant County had in crop seasons of several years caused the flooding of 8,000 acres of farm land in Traverse County never before overflowed, to the damage of farmers in that county of $28,000, and had created a condition dangerous to the health of the inhabitants. The act then proceeds to authorize the expenditure of $35,000 by the State Drainage Commissioners to remedy the situation. The money was expended in the building of a cut-off ditch two miles and a half in length, which continued the old ditch at right angles across the Twelve Mile Creek to the main channel of the Mustinka, and also in the straightening of the river from the mouth of the cut-off

to the lake, a distance of some fifteen miles. The bend in the Mustinka which the new ditch cut off was about seven miles long, thus saving some five miles in flow of the water. The straightening of the river below the cut-off shortened the river's course from that point to the lake three miles. Half way down to the lake, the river runs by the town of Wheaton, near which in 1916 there was, notwithstanding these improvements, a wide and prolonged overflow of its banks.

The evidence in the case consisted, first, of the testimony of farmers in the overflow region in the valley of the Bois de Sioux, as to the extent of the flood and their losses in 1915 and 1916; second, of farmers in the Mustinka watershed as to the floods of 1915 and 1916 and the effect in their neighborhood, and, third, of expert engineers and a geologist as to the part played by the ditches in these floods.

The engineers who were called by North Dakota said that the immediate cause of overflow was the maintenance in Lake Traverse of a high water level of 977 feet above the sea during part of the summer of 1915 and all of 1916, that this was three feet above the mesne Lake level of 974 feet, that the last foot or more of this rise was caused by the state ditching of the Mustinka, which prolonged the floods two summer seasons. One of these witnesses, Ralph, who had been state drainage engineer, first of Minnesota and then of North Dakota, and who seems to have been employed to prepare the case for the latter State, says that the ditching on the Mustinka raised the lake from one to one and a half feet in 1916. Dean Shenehon, another engineer expert, says that when the lake is at a mesne height of 974, the Minnesota ditches are responsible for a permanent increase in the level of from three to six inches, say four inches, and that in time of flood when the lake rises to 977, the ditches account for ten inches. The varying estimates of these two principal

witnesses for North Dakota do not seem to rest on definitely ascertained data. We have no government or other gaugings of the flow from the Mustinka into the lake before the cut-off was completed in 1915. The first of such gaugings was taken near Wheaton in March, 1916. The cubic feet of flow into the Lake from the Mustinka before the cut-off ditch was constructed, is therefore a matter of judgment rather than calculation, dependent on the probable run-off during the period of floods from the watershed, the extent of detaining basins that then existed, the possible evaporation under then conditions, the cross sections of the present ditches compared with probable cross sections of the channel of the old river as it was before the ditches and the straightening of the river, and the extent to which it then overflowed its banks in time of flood. Most of these factors and their effect were a matter of unsatisfactory estimate in the absence of actual gaugings and measurements of the flow into the Lake from the old Mustinka in a state of nature. The situation was indeed complex, as Dean Shenehon expressed it. He said he could not say definitely how large a detaining basin was destroyed by the new work. He left the subject with this general statement:

"I looked over that country and in my judgment all that complex of cut-off canals and state ditches and improved Mustinka River from the outlet of the cut-off to Lake Traverse and the laterals or ditches entering it in my judgment increased the run-off of water in flood conditions substantially fifty per cent. . . . I have viewed the conditions, and in my judgment as an engineer, which is the best judgment I can give you, the run-off is fifty per cent greater than in a state of nature."

Having thus reached the proportion of increase, the witness's estimate was that the flow into the lake from the Mustinka in a state of nature was 1600 cubic second feet and that the ditching by the State added 800 cubic

feet and that increase accounted for maintenance of the high lake level and the continuous flood complained of.

This conclusion was largely dependent on the assumption that there was what Ralph called the Delta Zone covering from seventy to one hundred square miles lying immediately east of Twelve Mile Creek and extending east toward the Upper Mustinka and north beyond the line of the cut-off and old ditch. Both Ralph and Shenehon maintained that this was a low, moist, marshy region, with a rim which acted as a retaining basin for the overflowed waters of the confluence of the three Mustinka constituent streams, and that the cut-off, by draining this, prevented the former heavy loss by evaporation, accelerated the flow and increased the volume of the water carried down to the lake by one-half, and would give every recurring flood the same effect.

Ralph also insisted that in the state of nature before the ditching, whenever there was high water in the Mustinka, the water flowed north over a ridge or low height of land into the sources of the Rabbit River in Tintah Slough, that thus a very considerable amount was carried directly to the Bois de Sioux basin, some fifteen miles north of the Lake, and that by this diversion, the level of the Lake was kept lower. Now, he said, the cut-off made this diversion negligible and of course added to the flow into the Lake. The weight of the evidence, however, is that it has only been when the level of the Mustinka River at the confluence with the Twelve Mile Creek exceeds the height of 998 feet above the sea, that it has flowed into the Rabbit River, that it reached this height during the summers of 1915 and 1916, and that then the same amount of water flowed over into the Rabbit Creek as formerly. While in a general way Ralph was corroborated by Dean Shenehon and Professor Chandler, another expert witness, neither of these at-

tached much importance to the part played by the diversion into the Rabbit River from the Mustinka either before or after the state ditching works.

The case for North Dakota was much weakened by the weight of evidence showing that the great detaining basin in the so-called Delta Zone was non-existent. The testimony of three engineering experts and a geologist called by Minnesota, who examined the watershed, as well as the numerous farmers and oldtime residents who lived on, and successfully cultivated, all of the Delta Zone, was convincing to show that the land was ordinary prairie land with an inclination to the north and northwest of five feet in a mile down to the Mustinka, and without any rim or rising border to make a detaining basin. The slope of the Zone was said by one competent witness to be greater than that of much of the fertile prairie lands of Illinois. There were only two places in the neighborhood which could be described as possible detaining basins. One was the Redpath Slough which yields wild hay in a dry season and covers an area of six or seven square miles. The other was Tintah Slough, a basin of like character, already referred to as one of the sources of the Rabbit River and not in the Mustinka watershed.

The testimony adduced by the defendant State tended to show that the new cut-off which had been constructed to avoid floods in this region in high water was not regarded as effective by those who had pressed for its construction, because in times of flood their lands were overflowed apparently as much as before. There was substantial evidence that the cut-off did not run full in times of the highest water, because of the obstruction from the onrush at such times of the Twelve Mile Creek at right angles across the union of the old and new ditches. The Twelve Mile Creek thus dominated the ditches to such an extent that it carried much of its water north to its old confluence with the Upper Mustinka, and round the old

bend of that stream of six or seven miles. The result, as estimated by Minnesota's witnesses, was that the old bend at the crest of the flood carried twice as much water as the cut-off.

Professor Bass for Minnesota testified that at the time of flood it took nine hours for the water by way of the cut-off from Twelve Mile Creek to reach the Lake and thirteen hours by way of the old Bend, and his estimate was that before the cut-off was built it would have taken eighteen hours. This would seem to indicate that the difference in speed of flow into the Lake made by the new cut-off in a flood which lasted all summer would be negligible in effect. Doubtless the ditches of the Mustinka helped to carry the water into the Lake faster than before they were constructed, but a speedier flow of the same amount of water would in an entire summer of flood have but little effect on the height of the lake, or the overflow in its outlet through the Bois de Sioux Valley. Mr. Meyer and Mr. Morgan, witnesses for Minnesota, and both engineers of great experience in floods, say that a more rapid flow into a lake with an outlet will not raise the level of the lake as high as a slower inflow because the more rapid the inflow the greater the opportunity for outflow during the period of rising.

An additional factor of the high water on the banks of the Bois de Sioux in time of flood, as pointed out by Professor Bass, was in the railroad embankments and county roads crossing the whole slough-like basin of the Bois de Sioux. These with their limited outlets, he thought, served to dam the flooded river in its sluggish flow. He also called attention to the obstruction by the back water from the discharge of the Rabbit River which delivered itself with such force as to throw gravel and debris over to the opposite bank of the Bois de Sioux. Professor Bass relied on special measurements made for the purpose by

a competent engineer, of the capacity of the Bend, the Twelve Mile Creek, and the old ditch and the new cut-off, as well as that of the straightened river between the cut-off and the Lake, the extent of the flooding half way down the river to the Lake near Wheaton and the basin of the Bois de Sioux. He testified that when the Lake was at the highest flood level, the added and more rapid flow due to the ditches did not increase this more than two inches and was negligible in creating a flood in the Bois de Sioux.

A marked difference between the evidence of the experts for the complainant and of those for the defendant was in respect to the effect they attributed to the rainfall in 1914, 1915 and 1916. Those for North Dakota insisted that in neither 1915 nor 1916 was there the exceptional rainfall to produce the unusual flood in the Bois de Sioux Valley and that this was a significant fact in support of the view that the exceptional overflow in that valley was due to the artificial cut-off and the straightening of the Mustinka River bed. This contention was met and completely overcome by the Government records and other evidence of the rainfall and floods in 1915 and 1916 in the whole upper Red River Valley. The evidence satisfactorily establishes the fact to be that the flood in 1915 and that in 1916 exceeded any flood in that region for a succession of years since 1881. Great floods seem to have occurred about every ten years and to have been the result of excessive precipitation for three successive years. One was in 1881. Another of these was in the period of 1895, 1896 and 1897. Another was in the period of 1905, 1906 and 1907, and a third was in the period of 1914, 1915 and 1916. The last two were greater than the second. There was a run-off all over the upper Red River Valley in the year 1916 greater than in any period preceding since 1902. There were heavy rains in 1914, so that in October there was an accumulated excess of 3.54 inches. In 1915 the

excess continued to grow until in October of that year there was an excess of 7.94 inches. Winter came on when the waters were at flood and froze them, so that the spring freshets of 1916 were very heavy and these were succeeded by heavy precipitation in June and July, so that by the fall of 1916 there was an excess of 16.15 inches. The flood was thus continuous during the whole summer season of that year. There was no opportunity to plant in the Fall of 1915 because it was so wet, and in 1916 cultivation was impossible. The soil was described as mush. The farmers of all that region, not only in the valley of the Bois de Sioux but in the Mustinka watershed and elsewhere in the upper valley of the Red River, had only a third or half of a crop in 1915, and in 1916 there was no crop at all, due to excessive and continuous rain.

It is not contended on behalf of the complainant that the damage from the floods of 1915 and 1916 in the Bois de Sioux was due to the higher flood line reached in those years so much as to the prolonged period during which the waters lay on the flooded area. It is admitted that such freshets were to be expected in the spring from time to time, but it is said that previously they had only lasted from three to eight days, and that the water receded, leaving the land on the banks of the Bois de Sioux cultivable and productive in the proper season. We can not fail to note, however, that this strip half a mile to two miles wide and fifteen miles long, injury to which is complained of, was low and subject to overflow. There were sloughs in it running into the Bois de Sioux and the government survey showed on the plats that 27 per cent. of it was marshy. Much of the tract was good farming land except in time of excessive flood which the history of the region shows, as we have said, was to be expected about every ten years.

It is difficult for a court to decide issues of fact upon which experts equal in number and standing differ flatly

and when their conclusions rest on estimates upon the correctness of which the court, without technical knowledge, can not undertake to pass. In such cases, the court looks about for outstanding facts from which the lay mind can safely draw inferences as to the probabilities. The court is also aided by its judgment of the care and accuracy with which the contrasted experts respectively have determined the data upon which they base their conclusions. The experts called by Minnesota in this case seemed to us to use more specific and accurately ascertained data for their estimates than those for North Dakota, and this circumstance, as well as the more satisfactory reasons given, lead us to think that their conclusions are more to be depended on.

When we consider the extent and prolonged period of the floods of 1915 and 1916, covering, as they did, the whole upper valley of the Red River, of which the Mustinka watershed was but a small part, when we note that that watershed is only one-half of what feeds Lake Traverse, when we find that all this upper Red River valley was drenched with continuous rain for two summer seasons, with a frozen flood between them, when it appears that the farmers of the Mustinka valley lost as much of their crops in 1915 and had as total a loss in 1916 as the farmers on the Dakota banks of the Bois de Sioux, when we know that these farmers in the Bois de Sioux are used to frequent floods in the spring for three to eight days because of the low level of their lands, the system of state ditching in the Mustinka sinks into a circumstance of negligible significance in the consideration of the mighty forces of Nature which caused these floods. To attribute to such a minor but constant artificial incident a phenomenal effect for two whole summer seasons without a recurrence since is to fly in the face of all reasonable probability. The evidence must be clear and convincing indeed to support such a theory. Instead of that it is a

combination of estimates, and conjecture based on no accurate knowledge of the flow of the Mustinka before the ditches were put in, and depending greatly on a hypothetical detaining basin in the so-called Delta Zone, existence of which the greater weight of the evidence negatives. Moreover, as already pointed out, the burden of proof that the State of North Dakota must carry in this case is much greater than that imposed on the ordinary plaintiff in a suit between private individuals.

The possibility of saving these Bois de Sioux lands from recurring floods, whether each year or every ten years, by controlling and distributing the flow from the Lake and making larger its outlet, suggests itself even to the layman. The capacity of the present outlet is between 1200 and 1500 cubic second feet, offering too small opportunity for safe escape of the high water of the lake which experience shows may be expected in that region. Accordingly, after the first hearing of this case, without reaching a conclusion as to the legal responsibility for the overflow complained of, and with the thought that the Court might be able to provide for a proper remedy in its decree, it ordered a rehearing and the taking of supplemental proof deemed necessary to an adequate consideration and disposition of the cause, as to the possibility and cost of ameliorating the flood conditions by means other than the injunction prayed in the bill. [256 U. S. 220.] The order specified the projects to which the proof should be directed as follows:

First, to a project for detaining basins in the Mustinka River watershed,

Second, to a sluice dam in Lake Traverse,

Third, to improvements of the Bois de Sioux outlet by increasing its capacity,

Fourth, to making an outlet from the lake across a height of land into Big Stone Lake which drains into the Mississippi, and

Fifth, to a larger diversion of the Mustinka River waters into the Rabbit River.

The Court also directed proof as to the flood conditions which had prevailed in the area claimed to have been flooded since the filing of the bill. Three engineers were to be called on each side.

All the remedies suggested by the Court were rejected by the engineers of both sides as impracticable except those of a sluice dam in Lake Traverse and the enlarging of the capacity of the lake outlet through the Bois de Sioux. The engineers for North Dakota thought that such an improvement could be constructed for about $100,000, while the engineers for Minnesota insisted that the dam and dredging provided at that cost would be a mere temporary and unsatisfactory makeshift and that ampler works needed for a permanent remedy would require an expenditure of from two and a half to five times as much. The evidence further showed that there had been no flooding of the lands in question since the filing of the bill, a period of six years, although there had been a very great rainfall and large increases in the flow of the Mustinka River in the spring of 1917 which was followed by a dry season.

The conclusion we have come to on the main issue of fact that Minnesota is not responsible for the floods of which complaint is made, makes it unnecessary for us to consider this evidence as to a practical remedy for them, and requires us to leave the opinions and suggestions of the expert engineers for the consideration of the two States in a possible effort by either or both to remedy existing conditions in this basin.

The bill is dismissed without prejudice.

The costs were adjudged against the plaintiff. See *post*, p. 583. REPORTER.

STATE OF NORTH DAKOTA *v.* STATE OF MINNESOTA.

IN EQUITY.

No. 10, Original. Instruction to the Clerk.—Opinion rendered January 21, 1924.

In an original suit between States, the practice has been to divide the costs between the parties where the matter was a governmental question in which each had a real, yet not a litigious, interest; but where the proceeding is clearly litigious, conducted on behalf and, apparently, at the expense of private individuals, the costs should be adjudged against the defeated plaintiff.

Costs taxed against plaintiff. See *ante*, p. 365.

MR. CHIEF JUSTICE TAFT delivered the opinion of the Court.

The Clerk has asked instruction concerning the taxation of costs.

By far the greater number of suits between States have been brought for the purpose of settling boundaries.[1] In the first, *Rhode Island* v. *Massachusetts*, 4 How. 591, 639, the bill was dismissed. There was no provision as to costs in the decree and the record of fees is not available. In

[1] *Rhode Island* v. *Massachusetts*, 4 How. 591, 639; *Missouri* v. *Iowa*, 7 How. 660; *Same Case*, 10 How. 1; *Missouri* v. *Kentucky*, 11 Wall. 395; *Indiana* v. *Kentucky*, 136 U. S. 479; *Same Case*, 159 U. S. 275; *Same Case*, 163 U. S. 520, 527; *Nebraska* v. *Iowa*, 143 U. S. 359, 370; *Iowa* v. *Illinois*, 147 U. S. 1; *Same Case*, 151 U. S. 238; *Same Case*, 202 U. S. 59; *Missouri* v. *Iowa*, 160 U. S. 688, 692; *Same Case*, 165 U. S. 118; *Missouri* v. *Nebraska*, 196 U. S. 23; *Same Case*, 197 U. S. 577; *Washington* v. *Oregon*, 211 U. S. 127; *Same Case*, 214 U. S. 205; *Missouri* v. *Kansas*, 213 U. S. 78; *Maryland* v. *West Virginia*, 217 U. S. 577, 585; *North Carolina* v. *Tennessee*, 235 U. S. 1, 17; *Minnesota* v. *Wisconsin*, 252 U. S. 273; *Same Case*, 254 U S. 14; *Same Case*, 258 U. S. 149; *Arkansas* v. *Mississippi*, 256 U. S. 28, 35; *Georgia* v. *South Carolina*, 257 U. S. 516, 523; *Oklahoma* v. *Texas*, 258 U. S. 574.

Missouri v. *Kentucky*, 11 Wall. 395, the bill was dismissed with costs, from which we infer that the defeated party paid them. In the remaining thirteen the costs were equally divided.

In *Nebraska* v. *Iowa*, 143 U. S. 359, 370, Mr. Justice Brewer, speaking for the Court, said: "The costs of this suit will be divided between the two States, because the matter involved is one of those governmental questions in which each party has a real and vital, and yet not a litigious, interest." And in *Maryland* v. *West Virginia*, 217 U. S. 577, 582, Mr. Justice Day delivering the opinion of the Court, said:

"The matter involved is governmental in character, in which each party has a real and yet not a litigious interest. The object to be obtained is the settlement of a boundary line between sovereign States in the interest, not only of property rights, but also in the promotion of the peace and good order of the communities, and is one which the States have a common interest to bring to a satisfactory and final conclusion. Where such is the nature of the cause we think the expenses should be borne in common, so far as may be, and we therefore adopt so much of the decree proposed by the State of Maryland as makes provision for the cost of the surveys made under the order of this court."

The same rule, however, does not apply to cases in which the parties have a litigious interest. In *New Hampshire* v. *Louisiana* and *New York* v. *Louisiana*, 108 U. S. 76, 91, the complainant States brought suits upon bonds of Louisiana assigned to them by their citizens for the purpose of avoiding the inhibition of the Eleventh Amendment. The suits were dismissed with costs adjudged against the complainants.

In *South Dakota* v. *North Carolina*, 192 U. S. 286, 321, the suit was on bonds of North Carolina donated by the original purchasers to South Dakota and there was judg-

ment for South Dakota for the amount due with costs of suit.

In *Missouri* v. *Illinois*, 200 U. S. 496, 526, which was a bill to restrain Illinois and her subordinate agency, the Chicago Sanitary District, from discharging sewage into the Mississippi and exposing the people of Missouri to danger of typhoid fever from germs in their drinking water, the bill was dismissed without prejudice but the costs were adjudged against the complainant State.

In *New York* v. *New Jersey*, 256 U. S. 296, 313, the bill sought to restrain the pollution of the harbor of New York. The bill was dismissed without prejudice, but the costs were adjudged against New York.

In *Kansas* v. *Colorado*, 206 U. S. 46, 117, the suit was brought to enjoin diversion of flowing water. Apparently the Court regarded the issue as a non-litigious one the settlement of which would be useful to both States and, following the boundary cases, divided the costs. In *Wyoming* v. *Colorado*, 259 U. S. 496; 260 U. S. 1, 3, where the issue was similar, the costs were adjudged one-third to Wyoming, one-third to Colorado, and one-third to two corporate defendants at whose expense the case had been defended by Colorado.

The present proceeding is clearly a litigious one. The persons whose lands were overflowed raised a fund to conduct the litigation. The bill of North Dakota asked for a decree of injunction with $5,000 for damages to state property and $1,000,000 for damages to residents of North Dakota with the purpose, presumably, of distributing the latter sum to injured residents, contributors to the fund. The exact agreement as to the use of the funds thus raised does not appear in the record. When the State Engineer of North Dakota, Mr. Ralph, the chief witness for the State, was cross-examined in respect to it, he refused to answer by advice of counsel for North Dakota. The natural inference is that the fund was being

used in the conduct of the litigation. We think that the circumstances put this case in the category with *New Hampshire* v. *Louisiana*, *Missouri* v. *Illinois*, and *New York* v. *New Jersey*, and that the costs should be taxed against North Dakota, the defeated party.

It is so ordered.